

528,543

(12)特許協力条約に基づいて公開された国際出願

(19)世界知的所有権機関
国際事務局(43)国際公開日
2005年2月17日 (17.02.2005)

PCT

(10)国際公開番号
WO 2005/015724 A1(51)国際特許分類⁷:

H02M 3/28

(21)国際出願番号:

PCT/JP2004/011561

(72)発明者; および

(22)国際出願日:

2004年8月5日 (05.08.2004)

(75)発明者/出願人(米国についてのみ): 安村 昌之 (YASUMURA, Masayuki) [JP/JP]; 〒1410001 東京都品川区北品川6丁目7番35号 ソニー・ヒューマンキャピタル株式会社内 Tokyo (JP).

(25)国際出願の言語:

日本語

(26)国際公開の言語:

日本語

(30)優先権データ:

特願2003-287887 2003年8月6日 (06.08.2003) JP
 特願2003-319754 2003年9月11日 (11.09.2003) JP
 特願2004-171499 2004年6月9日 (09.06.2004) JP

(71)出願人(米国を除く全ての指定国について): ソニー株式会社 (SONY CORPORATION) [JP/JP]; 〒1410001 東京都品川区北品川6丁目7番35号 Tokyo (JP).

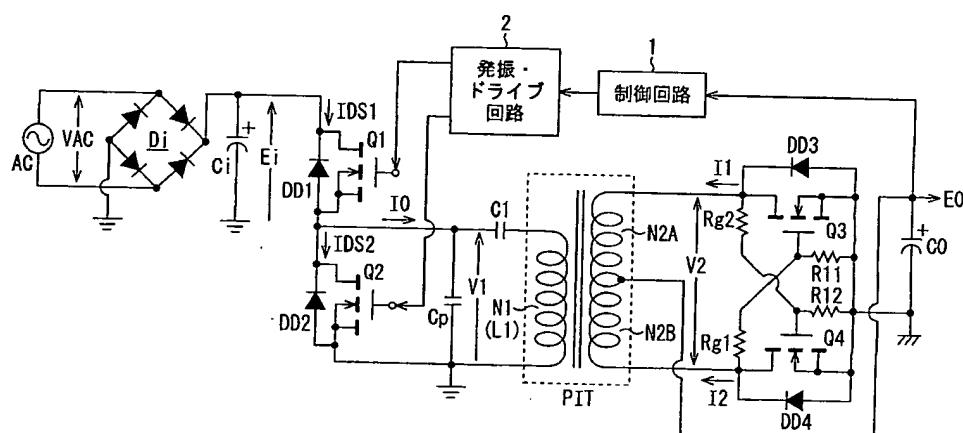
(74)代理人: 稲本 義雄 (INAMOTO, Yoshio); 〒1600023 東京都新宿区西新宿7丁目11番18号 711ビルディング4階 Tokyo (JP).

(81)指定国(表示のない限り、全ての種類の国内保護が可能): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG,

(続葉有)

(54) Title: SWITCHING POWER SUPPLY CIRCUIT

(54)発明の名称: スイッチング電源回路



2...OSCILLATOR/DRIVER CIRCUIT

1...CONTROL CIRCUIT

(57) Abstract: A complex resonance type converter having a sync rectifier circuit exhibits a high power conversion efficiency, while having a reduced circuit scale because of its simplified circuit arrangement and being able to be manufactured at a low cost. In order to realize such a complex resonance type converter, a sync rectifier circuit of a winding voltage detection system is provided on the secondary side of the complex resonance type converter; the gap length of an insulating converter transformer (PIT) is set to the order of 1.5 mm; the coupling coefficient thereof is set to as small as the order of 0.8; and the turns number of a primary winding (N1) and those of secondary windings (N2A,N2B) are set such that the induced-voltage level per turn (T) of the secondary windings will be 2V/T. As a result, the magnetic flux density of the core of the insulating converter transformer (PIT) is below a predetermined value, so that the rectified current on the secondary winding side can be placed in a continuous mode even under a heavy-load condition.

A1
2005/015724 A1

(57)要約: 同期整流回路を備える複合共振形コンバータとして、高い電力変換効率を得ることと、回路の簡易化による回路規模の縮小、及び低コスト化を図ることとの両立を図るために、複合共振形コンバータの二次側に巻線電圧検出方式の同期整流回路を備え、そして、絶縁コンバータトランスPITのギャップ長を1.5mm程度として結合係数を0.8程度にまで低下させることによって、

ABSTRACT

In order to both provide high power conversion efficiency of a complex resonant converter having a synchronous rectifier circuit and reduce a circuit scale and cost by simplifying the circuit, a synchronous rectifier circuit of a winding voltage detection system is provided on a secondary side of the complex resonant converter, a coupling coefficient is decreased to about 0.8 by setting a gap length in an isolated converter transformer PIT to about 1.5 mm, and numbers of turns of a primary winding N1 and secondary windings N2A and N2B are set such that a level of a voltage induced per turn (T) of the secondary windings is 2 V/T . Thus, since magnetic flux density at a core of the isolated converter transformer PIT is decreased to a certain value or lower, a secondary side rectified current can be in a continuous mode even under a condition of heavy load.